Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 29, 2008 has been entered.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

EXAMINER'S AMENDMENT

3. This examiner's amendment is in response to the Applicant's request for continued examination filed February 29, 2008. Applicant's amendment filed February 29, 2008 amended claims 1-16 and 21 and added new claims 22-23, claims 17-20 being previous canceled. Claims 1-3, 5-16 and 21-23 are amended and claim 4 is canceled herein, via examiner's amendment.

Claims 1-3, 5-16 and 21-23 are currently pending and allowed.

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Victor Cardona (Reg. No. 44,589) on April 8th, 2008.

Amendments to the Claims:

1. (Currently Amended) An air cargo yield management method for optimising a yield parameter resulting from assigning an offered capacity offered by a future instance of a cargo flight to each one of a plurality of different categories of requests competing for the capacity, the method including the steps of:

defining the offered capacity by a weight variable and a volume capacity variable, the weight and the volume variable independent relative to each other;

storing a set of historical profiles for each one of a plurality of previous instances of the cargo flight, the set including a historical profile of an historical value of the weight variable and the volume variable reserved by each category,

assigning a probability to each previous instance of the cargo flight,

estimating a potential profile of a potential value of the weight variable and the volume variable from each historical profile according to a corresponding current value of the capacity variable reserved by the category for the future instance of the cargo flight and according to a corresponding unconstrained demand of the weight and the volume variable for the category in the previous instance of the cargo flight,

defining a historical scenario for each previous instance of the cargo flight, the historical scenario including a final potential capacity variable from each corresponding potential profile, the final potential variable comprising a final potential weight capacity variable and a final potential volume capacity variable;

determining an authorisation to allocate the offered capacity for the weight variable and the volume variable of each category in the future instance of the cargo

flight by applying a stochastic model to the historical scenarios according to the corresponding probabilities; and

providing a determination to a display of a computing unit of an acceptance or a rejection of a request for the cargo flight based on the authorization;

wherein each historical profile and each potential profile include a plurality of corresponding snapshots of the reserved capacity variable and of the potential capacity variable, respectively, the step of estimating the potential profile including:

estimating an opening coefficient for each period comprised between two consecutive snapshots, the opening coefficient being indicative of a percentage of time during which the category was open in the period,

calculating an emphasis value for each period as a weighted mean of a gradient in the period of the reserved capacity variable for the category in a subset of the corresponding historical profiles,

estimating a potential gradient for each period as a linear interpolation between the gradient, for a first value of the opening coefficient indicative of a complete opening of the category, and the highest between the gradient and the emphasis value, for a second value of the opening coefficient indicative of a complete closure of the category, and

constructing the potential profile from a time corresponding to the current time by integrating the potential gradients starting from the corresponding current capacity variable.

4. (Canceled)

ALLOWANCE

4. Claims 1-3, 5-16 and 21-23 are currently pending, as amended above, and allowed.

REASONS FOR ALLOWANCE

5. The following is an examiner's statement of reasons for allowance.

The present invention is directed to an to an Air Cargo Yield (revenue) management system and method wherein the system determines which customer orders (requests for capacity) to authorize/allocate to each of a plurality of offered capacity categories by applying a stochastic model to the historical scenarios, created based on historical and potential profiles) according to the assigned probability to each previous instance of the cargo flight.

The closest prior art Zeni, Richard H., Improved Forecast Accuracy in Revenue Management By Unconstraining Demand Estimates from Censored Data, Lee, Anthony Owen, Airline Reservations Forecasting: Probabilistic and Statistical Models of the Booking Process, and Gunther, Dirk, Airline Yield Management (1998) fail to teach or suggest either singularly or in combination fail to teach or suggest an air cargo yield management system and method comprising:

storing a set of historical profiles for each one of a plurality of previous instances of the cargo flight, the set including a historical profile of an historical value of the weight variable and the volume variable reserved by each category,

assigning a probability to each previous instance of the cargo flight,

estimating a potential profile of a potential value of the weight variable and the volume variable from each historical profile according to a corresponding current value of the capacity variable reserved by the category for the future instance of the cargo flight and according to a corresponding unconstrained demand of the weight and the volume variable for the category in the previous instance of the cargo flight,

defining a historical scenario for each previous instance of the cargo flight, the historical scenario including a final potential capacity variable from each corresponding potential profile, the final potential variable comprising a final potential weight capacity variable and a final potential volume capacity variable;

determining an authorisation to allocate the offered capacity for the weight variable and the volume variable of each category in the future instance of the cargo flight by applying a stochastic model to the historical scenarios according to the corresponding probabilities; and

providing a determination to a display of a computing unit of an acceptance or a rejection of a request for the cargo flight based on the authorization;

wherein each historical profile and each potential profile include a plurality of corresponding snapshots of the reserved capacity variable and of the potential capacity variable, respectively, the step of estimating the potential profile including:

estimating an opening coefficient for each period comprised between two consecutive snapshots, the opening coefficient being indicative of a percentage of time during which the category was open in the period,

calculating an emphasis value for each period as a weighted mean of a gradient in the period of the reserved capacity variable for the category in a subset of the corresponding historical profiles,

estimating a potential gradient for each period as a linear interpolation between the gradient, for a first value of the opening coefficient indicative of a complete opening of the category, and the highest between the gradient and the emphasis value, for a second value of the opening coefficient indicative of a complete closure of the category, and

constructing the potential profile from a time corresponding to the current time by integrating the potential gradients starting from the corresponding current capacity variable as recited in independent Claim 1.

None of the prior art of record, taken individually or in any combination, teach, inter alia, a method for air cargo yield management wherein the method determines an authorization to allocate offered air cargo capacity (weight and volume variables), in a plurality of capacity categories, for future instances of air cargo flights by applying a stochastic model to defined historical scenarios for each previous instance of the cargo flight, the historical scenario including a final potential capacity variable from each

corresponding potential profile, the final potential variable comprising a final potential weight capacity variable and a final potential volume capacity variable;

wherein each historical and potential profile include a plurality of snapshots of the reserved capacity variable and of the potential capacity variable, and the potential profiles are estimated by:

estimating an opening coefficient for each period comprised between two consecutive snapshots, the opening coefficient being indicative of a percentage of time during which the category was open in the period,

calculating an emphasis value for each period as a weighted mean of a gradient in the period of the reserved capacity variable for the category in a subset of the corresponding historical profiles,

estimating a potential gradient for each period as a linear interpolation between the gradient, for a first value of the opening coefficient indicative of a complete opening of the category, and the highest between the gradient and the emphasis value, for a second value of the opening coefficient indicative of a complete closure of the category, and

constructing the potential profile from a time corresponding to the current time by integrating the potential gradients starting from the corresponding current capacity variable as recited in independent Claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- DeMarken et al., U.S. Patent No. 6,418,413, teach a system and method for providing air passenger seat availability.

- Phillips et al., U.S. Patent No. 7,110,960, teach a revenue (yield) management system and method for maximizing event profits by determining pricing, availability and the like of a plurality of event capacity.

- Smith, U.S. Patent No. 7,194,418, teach a system and method for determining the availability of airline tickets in a specific category (fare class).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SCOTT L. JARRETT whose telephone number is (571)272-7033. The examiner can normally be reached on Monday-Friday, 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Van Doren Beth can be reached on (571) 272-6737. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Scott L Jarrett/
Primary Examiner, Art Unit 3623